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WORKING LIFE AND UNEMPLOYMENT TABLES FOR MALES AND FEMALES CANADA, 1981

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ABSTRACT

This paper provides working-life and unemployment tables for Canadian males and females for 1981. The modified method used in calculating the labour force participation rates is based on the number of weeks worked per person and aimed to capture all persons who participate in the production of goods and services. Compared to the conventional approach, the modified rates are higher and appear to capture the demographic groups - mainly the older age groups and females of all ages - who tend to work periodically or for portions of the year, but nevertheless contribute to the national economy. Generally, Canadian males and females in 1981 could expect to live longer but spend less of their life time in the work force, although the modified tables reveal a lesser decline in the duration of working life compared to the conventional estimates. The unemployment tables generate gross and net estimates which provide a more comprehensive breakdown of the components of working life.

TABLE OF CONTENTS

		PAGE
1.	INTRODUCTION	1
2.	BACKGROUND	2
	2.1 Measures of Working Life	2
	2.2 Conventional versus Modified Working Life Tables	3
	2.3 Gross and Net Unemployment Tables	5
	2.4 Age, Sex and Female Marital Status Differentials	5
3.	METHODOLOGY	7
	3.1 Data	7
	3.2 Method	7
4.	THE TABLES	9
	4.1 Comparison of the Conventional and Modified Working Life Table	9
	4.2 Working-Life Patterns of Males and Females	10
	4.3 Unemployment-Life Patterns of Males and Females	11
	4.3.1 Gross Unemployment Tables	11
	4.3.2 Net Unemployment Tables	13
	4.4 Working- and Unemployment-Life Patterns of Females by Marital Status	13
	4.5 Estimating Components of Working Life	15
5.	HISTORICAL COMPARISONS	17
6.	CONCLUSIONS	20
REFERENCES		21
APPENDIX A	Calculation of the Table Columns	
APPENDIX B	Conventional and Modified Working-Life Tables Gross and Net Unemployment Tables	

1.0 INTRODUCTION

The labour force is the segment of a population engaged in the production of economic goods and services. Changes in the size, distribution, or composition of the labour force reflect changes in the economic well-being of that population. Labour force analysis is, therefore, an important aspect in the study of economic demography. In this respect, the working life table is a useful technique for summarizing the various components of labour force dynamics and their implications for a nation.

In earlier, or "conventional," working life tables, working life is defined as the total number of years that a person spends in the labour force. Thus defined, however, working life is not equivalent to the years of actual work, as it may include unemployment and does not distinguish between part-time and full-time work. Conventional tables have been shown to overestimate participation rates for younger ages and underestimate the rates for older ages. In order to provide a more realistic estimate of working life, this study will attempt to construct tables focussing on the economically active population only - that is, those who actually contribute to the production of a nation's goods and services.

On the other hand, unemployment serves as an indicator of a country's socio-economic conditions in that it has bearing on the cost and consequences of unemployment insurance, welfare, care for the disabled, and so on. As the employed and unemployed populations combined portray a more complete picture of the labour force dynamics of a nation, unemployment tables are also constructed.

The next section provides some background on the development of working-life tables and compares the conventional and modified versions. Section 3 describes the data sources and method employed. The results from the tables are discussed in Section 4. Historical trends in the working-life expectancy of males and females are then examined in Section 5 followed by some concluding remarks in the final section. The calculation of the columns is described in Appendix A and the working-life and unemployment tables are provided in Appendix B.

2.0 BACKGROUND

The length and pattern of working life are considered important economic indicators and have captured the interest of demographers for many years. This section provides some background on the development of measures of working life. The conventional and modified methods of constructing working-life tables are compared and gross and net unemployment tables are also examined. The age, sex and marital status differentials which are considered in the construction of working-life tables are then discussed.

2.1 Measures of Working Life

The concept of working life and methods to quantify it have been areas of demographic study for several decades. The age at which a person commences and terminates his or her working life, and the length of time in between, are subjects of considerable interest to both the private and public sectors and the nation as a whole. The working-life table (WLT) is a useful tool in studying these matters. It enables us to assess the growth and structural change of the labour force, and provides measures of such quantities as the life-time expectation of an individual's earnings, the expected contribution of an age cohort to the nation's output, and the economic implications of changes in the age structure or activity rates of the population (Denton and Ostry, 1969; United Nations Population Studies, No. 43, 1968).

Working-life tables are an extension of the conventional life table; their construction involves combining mortality rates with labour force participation rates. The tables, therefore, represent the life cycle of economic activity implicit in the mortality rates and worker rates of a hypothetical cohort for a single year or group of years. Thus, we may estimate the average number of working years remaining for all members of a particular age cohort, or for just those of that cohort in the labour force. On the other hand, the expected years of inactive life may be derived by subtracting the estimate of active years from life expectancy at a given age. Similarly, for persons in the labour force, the expected years of retirement may be calculated by subtracting working-life expectancy from life expectancy at a given age. The tables may also be used to measure entrances to and exits from the labour force and the ages at which these events are likely to occur (Shryock & Siegel, 1976; United Nations Population Studies No. 43, 1968).

The assumptions and procedures employed in the development of working-life tables were applied as early as 1949 by Seymour Wolfbein in the construction of various WLT's for the United States. Stuart Garfinkle also developed WLT's for United States males in 1960 (Bogue, 1969). Working life tables for Canadian males were prepared by Denton and Ostry (1969) for the years 1921-1961, and by Gnanasekaran and Montigny (1975) for 1971. In 1975, Stafford and Roberts constructed WLT's for Alberta males and females for 1961. Krishnan, Penning and Kurian (1981) prepared the first WLT's for Canadian females for 1971, and Krishnan (1982) introduced a modified approach in developing the male tables for that year. Innovative work in the development and application of model working-life tables has been provided by Chow (1982) and Chow, Krishnan and Lalu (1981, 1986 and 1987).

The construction of most earlier working-life tables was based on what may be termed the conventional method, as outlined in the United Nations Population Studies, No. 43, 1968. It has more recently been argued that the earlier conventional working-life tables, while useful in portraying the working conditions of a nation, do not reflect the actual contribution of a person to the gross domestic product of that nation (Krishnan, 1982). For the conventional table, working life is defined as the total number of years that a person spends in the labour force. Thus defined, however, working life is not equivalent to the years of actual work, as it may include unemployment and does not distinguish between full-time, part-time and over-time work. Among innovative attempts to create more realistic estimates of working life, Krishnan (1979) developed a stochastic process model and Schoen and Woodrow (1980) prepared increment - decrement labour force status life tables. The latter used participation rates which reflect the actual behavior of individuals during the specified year, thus providing detailed measures of flows between the statuses "in the labour force" and "not in the labour force". The approach developed by Krishnan (1982), which is the focus of this study, is a "modified" version of the conventional working-life table based on the concept of "person year of work".

2.2 Conventional versus Modified Working Life Tables

Modification of the conventional working-life table to produce more realistic estimates of a person's actual contribution to the national economy involves, essentially, refining the current definition of labour force, then applying the appropriate weighting to participation rates which recognize each participant's contribution to the economy. The labour force definitions currently used in Canada and the United States, and in the construction of conventional working-life tables, are as follows:

In the Labour Force - persons 15 years of age and over who, during a specified week preceding the survey (the reference week) were either employed or unemployed;

Employed - persons who during the reference week
(a) did any work at all for pay or profit, or contributed unpaid work to a family farm, business or professional practice,
(b) had a job but were temporarily absent from work due to illness, bad weather, vacation, labour disputes, or personal reasons;

Unemployed - persons who during the reference week had no work but were available for work and,
(a) had actively looked for work during the prior four weeks,
(b) were waiting to be recalled to a job from which they had been laid off, or
(c) were waiting to report to a new job within 30 days.

Not in the Labour Force - persons who during the reference were not available and did not work, have a job, or look for work in the four weeks prior.

The broad scope of the "in the labour force" definition, as previously noted, includes all person's available for work in the reference week although they may not be contributing to economic production (i.e., the unemployed); at the same time it excludes persons who, during a given year, may have been employed in a week, or weeks, other than the reference week.

This limitation is accounted for in the modified table by employing the "person year of work" concept - that is, the number of weeks worked per person in a given year. A person who works 52 weeks (including paid holidays and vacation) generates one economically active person year, a person who works for 26 weeks contributes one half of an economically active person year, and so on. All age groups 15 years and over and all levels of participation in the production of goods and services for a specified year are included in the participation rates of the modified working-life table. Hence, the modified definition is:

Labour Force - the total number of economically active person years at the mid point of the specified year.

While the conventional definition of unemployment is not considered in the modified table, separate unemployment tables are useful in obtaining a more complete picture of labour force dynamics - that is, the rates of entry into and withdrawal from the labour force due to death, retirement or unemployment.

2.3 Gross and Net Unemployment Tables

The unemployment rate is a very sensitive indicator of a nation's economic well being. They are useful statistics in measuring changes over time. The rates are being challenged, however, as they appear to be less reliable and valid in recent years. This is partly due to the growth of young people and wives in the labour force who are more likely to enter and exit periodically causing their unemployment rates to fluctuate. The overall rates will also rise, however, simply due to this compositional change in the labour force (Cain, 1979). Unemployment tables provide more stable measures of the length and pattern of unemployed life relative to other countries.

Net unemployment tables are prepared using the same method as for working-life tables; unemployment rates and the appropriate columns from a life table are used to estimate the expected years of unemployment. Gross unemployment tables are constructed in the same way as life tables, although the gross tables do not consider mortality (Krishnan, 1986). Starting with a radix of 10,000 employed persons, the expected number of unemployment-free working years is estimated. A more comprehensive breakdown of a person's life time can be calculated using components from both the unemployment and working-life tables combined.

2.4 Age, Sex and Female Marital Status Differentials

The literature reveals some skepticism regarding rising participation and unemployment rates as realistic economic indicators. As noted, the high job mobility of the 15-24 age group leaving school and entering the work force and the periodic entries and exits of wives tend to inflate the unemployment rate compared to other demographic groups (Barnes & Jones, 1975; Bogue, 1985; Cain, 1979).

Participation rates are affected through the growth of students, wives, and older persons in the labour force as part-time workers. About 51% of all female workers worked less than a full year in 1980 compared to about 8% of male workers (Statistics Canada, 1985). Such differentials in participation rates, as well as the bimodal age pattern in the participation rates of females, particularly wives, appear to be less problematic using the modified WLT method than the conventional approach; the latter appears to overestimate the rates of younger age groups and underestimate those for older age groups (Krishnan & Kurian, 1982).

This study undertakes further comparisons of the two methods of working-life table construction and also expands on the previous work achieved in developing unemployment tables. Using 1981 data, conventional and modified working-life tables and unemployment tables (gross and net) are constructed for males and females. Modified working-life and net unemployment tables are also prepared for females by marital status. The methodology employed is first discussed in the next section.

3.0 METHODOLOGY

The data sources and the method employed in constructing the conventional and modified working-life tables, as well as the gross and net unemployment tables, are described in this section.

3.1 Data

In preparing the conventional working-life tables, the labour force participation rates by five-year age groups and sex were obtained from the 1981 Census of Canada (Statistics Canada, Catalogue 92-915). As the census did not publish the 65-69 and 70 years and over age categories, these were obtained from the Canadian Labour Force Survey, Annual Averages, 1981. The unemployment rates by five-year age groups and sex, used in preparing the gross and net unemployment tables, are also from the 1981 Census.

For the modified working-life tables, the data on the number of weeks worked by age and sex were obtained from the 1981 Census of Canada Public Use Sample Tapes. A 2% sample of males aged 15 and over and 5% sample of females aged 15 and over were drawn. This provided 3,687 male records and 9,630 female records. A larger female sample was required in order to calculate the modified participation rates by marital status.

The life table data (the lx, Lx, Tx, and ex columns) used in the conventional and modified working-life tables and the net unemployment table, are from Statistics Canada's life tables for Canada, 1980-82 prepared by Dhruva Nagnur (1986).

3.2 Method

For the modified working-life tables, the participation rates are calculated from the number of weeks worked by males/females in each 5-year age group. The total number of weeks worked by each age group is summed, then an average computed. We obtain the modified age specific participation rate per 100 as follows:

> if ax is the average number of weeks worked by males/females, and
> Px the mid-year population, then the modified age specific rate is
> $100\ (ax/52)Px/Px = (ax/52)\ 100$

In addition to the rates for the 5-year age intervals, specific rates for the beginning of each age interval are required for the calculation of some of the columns. These are obtained by averaging the rates for successive pairs of five-year age groups (United Nations Population Studies No. 43, 1968, pp 22-23).

In columns 12 and 13 of the conventional and modified working-life tables, the activity rates (Wx*) for the younger ages that fall below the maximum rate are adjusted. Since the number of young workers surviving would not include persons expected to enter the labour force in later life, but the working years of the older ages are summed in the cumulated economically active stationary population figures (Twx*), the expected years of employed life (ewx*) would be inflated for the younger ages. A hypothetical activity rate (the maximum rate) is, therefore, applied to all of the younger ages below the maximum rate.

For the conventional and modified working-life tables and the net unemployment table, the *l* x, Lx, Tx and ex columns are taken from an abridged 1980-82 life table and inserted.

The calculation of the columns for each of the tables begins with the age-specific activity rates; for the method employed see Appendix A, Calculation of the Table Columns.

4.0 THE TABLES

The data obtained from the conventional and modified working-life tables are compared in this section. The patterns of working life and unemployment for males and females, as revealed in the working-life and unemployment tables, are then examined. Finally, components from the various tables constructed are combined to provide a more comprehensive breakdown of the working life of males and females.

4.1 Comparison of the Conventional and Modified Working-Life Table

In Table 1- the conventional table for males- the participation rates and probabilities are higher than those in the modified table (Table 2) for all age groups up to 50-54 years; at this point the conventional rates decline sharply to 8.9% at age 70 compared to the modified rate of 64%. The rates from the two tables differ mainly in the younger (age 15-29) and older (age 60-70+) age groups, with the widest spread shown in the older groups. The modified rates form an inverted U shape, peaking at age 35-39 while the conventional rates peak at age 30-34.

The expectation of working life is shown to be about one year more at age 15 and 2.5 years more at age 70 in the modified table compared to the conventional method; for those in the labour force, 4 years are gained at age 15 and 2 years at age 70 using the modified version.

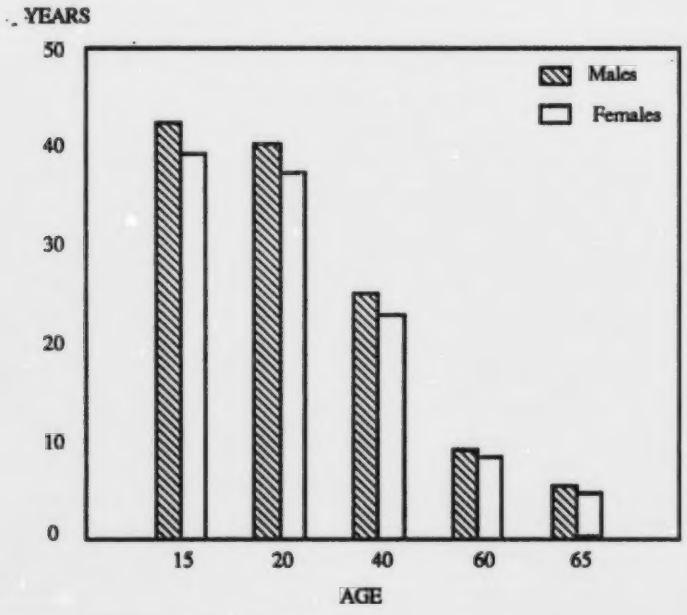
In Tables 3 and 4 the conventional and modified table results are shown for females. The reverse of the former comparison is revealed in that the modified rates are generally higher than the conventional, although, with the female conventional rates also declining markedly after age 50-54, the results are similar to those for males in Tables 1 and 2, with the modified rates being higher in both tables. While the female rates peak at age 20-24 in the conventional table, in the modified version there is a slight rise and decline between ages 25-29 and 30-34, but peaking does not occur until age 55-59. The bimodal age pattern, evident in female participation rates since 1951, is not clearly revealed using either method. Considerably higher working-life expectancy and lower economically inactive life is again obtained using the modified method.

4.2 Working-Life Patterns of Males and Females

Using the modified tables (Tables 2 and 4) to compare male and female working-life patterns, participation rates are shown to be consistently lower for females and peak at a later age than for males (age 55-59 versus 35-39, respectively). Column 7 (Lwx) in Tables 2 and 4 indicates there are 6% more males than females in the stationary labour force population at age 15, 11% more at age 40-44, and 4% less at age 65-69.

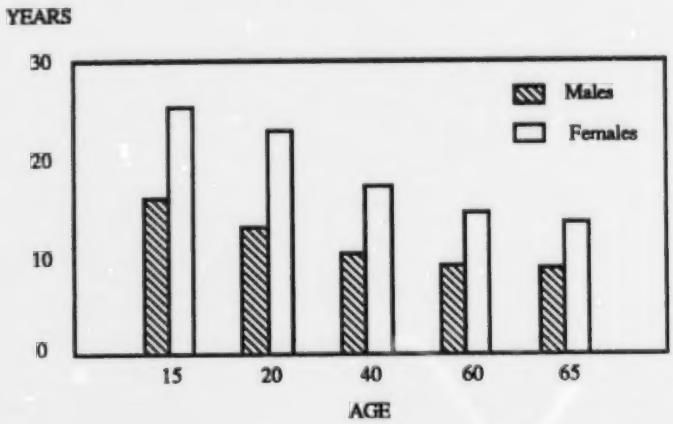
At age 15, females can expect to live 7 years longer than males (ex) but to work 3 years less than males (ewx). While females aged 15 can anticipate 9 more years of non-working or "dependent" life than males, after age 69 the difference narrows to just 4 more economically inactive years anticipated for females compared to males (erx), which reflects mortality differentials in favour of females (Charts 4.1 and 4.2).

Chart 4.1 Expectation of Working Life for Males and Females
Canada, 1981



Source: Tables 2 & 4, Column 10

Chart 4.2 Expectation of Non-Working Life for Males and Females
Canada, 1981



Source: Tables 2 & 4, Column 11

For males and females in the labour force the picture is somewhat different, females aged 15 can expect to remain in the labour force 4 years longer than males (ewx*). After age 65, females are likely to have about 4 more years of retirement life than males (ewr*), which again reflects longer life expectancy in favour of females.

(The data from the conventional tables (Tables 1 and 3) differ from the modified in that the expectation of working life is lower for all females and considerably lower for those in the labour force; the expectation of dependent and retirement life is, therefore, higher. The male conventional table results reveal the same differences from the modified version as shown in the female data but to a lesser extent - that is, the spread in the differences is not so great.)

4.3 Unemployment-Life Patterns of Males and Females

4.3.1 Gross Unemployment Tables

The gross unemployment tables for both males and females (Tables 5 and 6) show unemployment rates that are highest at age 15, then decline to age 50-54 for males and to age 55-59 for females, at which point they increase slightly in both cases.

Column 10 (eEx) reveals that males can expect 35 years of unemployment -free working life at age 15 and 5 years at age 60; females can anticipate 33 years at age 15 and also 5 years at age 60 (eEx). The mortality component is not considered in the gross tables.

The percentage loss in a person's working life due to unemployment can be computed using the index:

$$100\,(1 - (eEx/65 - x))$$

where eEx = expectation of unemployment-free working life
x = age at the beginning of an interval
65 = age at which tables are truncated (Krishnan, 1986)

The percentage loss of working life to males and females is given below:

Table 4.1 Percentage Loss of Working Life Due to Unemployment

Age	Males	Females
15-19	30.4	34.8
20-24	27.8	32.9
25-29	20.0	26.0
30-34	14.9	21.1
35-39	11.7	17.7
40-44	9.2	14.0
45-49	7.5	11.0
50-54	6.0	8.0
55-59	4.0	5.0
60-64	4.0	2.0

Source: Authors' Computations

4.3.2 Net Unemployment Tables

In the net unemployment tables (Tables 7 and 8), if we assume that unemployment rates and mortality rates remain constant over time, column 10 (eux) portrays the average number of years of unemployment a person can expect to experience in his/her life time. At age 15, males are likely to experience 3.4 years of unemployment compared to 4 years for females. The likelihood of unemployment declines to about half a year or less by age 65 for both sexes.

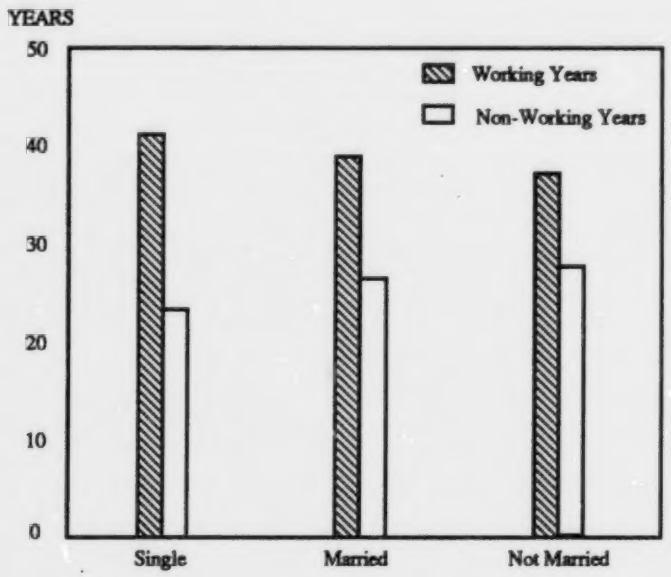
4.4 Working-and Unemployment-Life Patterns of Females by Marital Status

In Tables 9, 10 and 11, the modified method has been used to portray the working life of females by marital status. Conforming with the participation rates for all females, the rates for the three statuses peak at later ages - 55-59 for single and married females and 45-49 for "not married" females (the separated, divorced and widowed statuses combined). The rates dip slightly at age 30-34 for the married status, although the bimodal age pattern is not evident, as was revealed in the table for all females.

The participation rates are generally highest for single women, with the exception of age groups 15-19 (which could reflect continued schooling) and 60 years and over (which indirectly reflects retirement and mortality) Higher participation at age 60 and over is revealed for married and, particularly, the not married status which shows the highest rates. These higher rates at older ages may indicate continued labour force participation because circumstances dictate in the case of separated, divorced and widowed females, although the larger proportion of widows (generally older in age) would also influence the rates in the older age groups (in this sample, 65% of the combined not married status is widowed).

Examining the expectation of working-life in Tables 9, 10 and 11, at age 15 single women can expect to remain in the labour force 42 years, for married and not married women the expected number of working years is 39 and 37, respectively (ewx). The unmarried group - separated, divorced and widowed women - can expect the longest period of inactive or "dependent" life (28 years); married women are likely to spend 26 years and single women 24 years in the non-working state (erx) (Chart 4.3).

Chart 4.3 Expectation of Working and Non-Working Life for Females by Marital Status at Age 15 Canada, 1981



Source: Tables 9, 10 and 11, Columns 10 and 11

For members of the three statuses in the labour force at age 15, it is married women who are more likely to have a longer working-life (54 years); employed single, separated, divorced and widowed women can expect to remain in the labour force 52 years (ewx*). All three statuses can expect to spend about the same length of time in retirement at age 65 or 70 (erx*).

Tables 12, 13 and 14 present the net unemployment tables for females by marital status. The unemployment rates are highest for the 15-19 age group for all marital statuses, then decline consistently to the older age groups. The high rates in the younger ages indicate high job mobility and probably high "reentry unemployment" rates. The low rates in the older ages reflect the more stable participation of women who remain in the work force. The highest unemployment rate at age 15-19 is shown for married women (21%), followed by those single (16%) and then the not married group (12%).

At age 15, single women can expect fewer years of unemployment (3.1 years) compared to those married (4.5 years) and separated, divorced and widowed (4.1 years).

4.5 Estimating Components of Working Life

Data from the working-life and unemployment tables can be used in combination to produce a more comprehensive breakdown of a person's work-related life time (Krishnan, 1986). Examples are provided below using the modified working life and gross and net unemployment tables.

In the first example for males, referring to the modified working-life table, working-life expectancy at age 15 is 42.2 years (Table 2, column 10). From the net unemployment table, expected unemployment at age 15 is 3.4 years (Table 7, column 10). The years spent in actual work (in the production of goods and services) are, therefore, 42.2 - 3.4 = 38.8 years. Finally, the expectation of economically inactive life at age 15 is 15.8 years (Table 2, column 11). The components are then combined.

Estimate of Male's Total Working Life at Age 15:

	Years	%
(a) Actual working life	38.8	66.9
(b) Unemployment life	3.4	5.9
(c) Inactive Life	15.8	27.2
Total work-related life	58.0	100.0

Canadian males at age 15 can expect to spend 67% of their life contributing to the national economy, 6% in unemployment, and 27% in non-economic activities or "dependent" life.

Using Table 4, columns 10 and 11 and Table 8, column 10, a similar breakdown is provided for females aged 15.

Estimate of Female's Total Working Life at Age 15:

	Years	%
(a) Actual working life	35.3	54.3
(b) Unemployment life	3.9	6.0
(c) Inactive Life	25.8	39.7
Total work-related life	65.0	100.0

Another method to estimate total working life uses the gross years of active life and gross years of unemployment, which are calculated (see United Nations Population Studies, No. 43, 1968, pp 27-29), and unemployment-free working life at age 15 (Tables 5 and 6, column 7). The estimates for males and females are given below.

Gross Estimates for Males:

	Years	%
(a) Unemployment-free working life at age 15	34.8	73.9
(b) Gross years in unemployment per person, 15-70	4.9	10.4
(c) Balance (due to lay offs, etc.)	7.4	15.7
Gross years of active life per person, 15-70	47.1	100.0

Gross Estimates for Females:

	Years	%
(a) Unemployment-free working life at age 15	32.6	78.5
(b) Gross years in unemployment per person, 15-70	2.4	5.8
(c) Balance (due to lay offs, etc.)	6.5	15.7
Gross years of active life per person, 15-70	41.5	100.0

Thus, 74% of the working life of Canadian males and 79% of the working life of females contribute to the production of the country's goods and services. Ten percent of the time for males and 6% for females are spent in unemployment. The remainder of the working-life time - 16% for both males and females - is allocated to time off work for reasons such as lay offs. When the estimates of unemployment-free working life (UFWL) are adjusted for mortality[1], the number of years of actual working life decreases to 22.6 years for males and 26.3 years for females - that is, 48.0% and 63.4% of the gross years of active life for males and females, respectively.

---

[1] Mortality adjusted - UFWL = (l 70/l 15) UFWL

5.0 HISTORICAL COMPARISONS

The previous sections reveal that labour force participation rates and mortality are fundamental components in the construction of working-life tables. Indeed, it is the age at which one enters into, participates in, and retires from the labour force and the influence of mortality that determine the duration of one's working life. This section examines these components over time - from 1921 to 1981 - and their impact on expected working life. The historical trends are portrayed in Table 4.2.

Mortality was low in Canada as early as 1921 and continued to decline throughout the period. Male life expectancy at age 15 increased by 5.0 years between 1921 and 1981, while females gained 11.6 years over the six decades.

The pattern of working life also shows considerable change. Male participation rates declined from 88.7% to 78.2% between 1921 and 1981, with the sharpest drop (5.9 percentage points) occurring between 1951 and 1961. The sharper drop in the 1961 rates was mainly in the 15-19 and 20-24 age groups and reflects the prevailing trend toward individualism and freedom among the younger population of that era, as opposed to the earlier trend toward a more conventional working-life style.

In 1981 males aged 15 could expect to live 5.0 years longer than in 1921, but to spend 6.3 years less in the work force (conventional table estimate). The general downturn in male working-life expectancy after 1951 reflects the trend toward later school leaving among the young and earlier retirement among the older age groups. On the other hand, the modified estimates of working life are higher, particularly for ages 60 and 70, at which ages males can expect to work 4-5 years longer than the conventional estimates predict. This indicates that the part-time or periodic employment of the semi-retired is being captured by the modified approach (weeks worked concept) and, more importantly, that a greater need to work appears to exist among the older population in order to meet the demands of a higher cost of living.

Table 4.2 Working-Life Expectancy, Canada, 1921-1981

Males

	1921	1931	1941	1951	1961	1971	1981	
Participation Rate (Age 15+, per100)	88.7	87.5	85.8	84.0	78.1	76.4	78.2	
Life Expectancy at Age 15	53.1	53.4	54.1	55.4	56.2	56.4	58.1	
Working-Life Expectancy								
Age[1]							*	**
15	47.7	48.0	48.1	47.9	47.8	47.3	41.4	(42.2)
20	43.4	43.5	43.5	43.2	43.1	42.6	39.3	(40.2)
40	26.4	26.1	25.5	24.7	24.5	24.0	21.3	(24.5)
60	10.5	10.2	9.4	8.7	8.6	7.7	4.5	(8.9)
70	5.8	5.7	5.6	5.5	5.4	5.2	0.4	(5.6)

Females

Participation Rate (Age 15+, per100)	17.6	19.6	20.7	24.1	29.7	39.9	51.8	
Life Expectancy at Age 15	53.4	54.2	56.4	59.2	61.5	63.1	65.0	
Working-Life Expectancy								
Age[2]							*	**
15	–	–	–	–	–	38.7	28.0	(39.2)
20	–	–	–	–	–	37.2	25.8	(37.2)
40	–	–	–	–	–	24.4	12.4	(23.2)
60	–	–	–	–	–	10.0	1.9	(8.6)
65	–	–	–	–	–	9.4	0.5	(5.2)

1,2 1971 and 1981 refer to 5-year age groups

* Estimates from the 1981 Conventional Working-Life Tables

** Estimates from the 1981 Modified Working-Life Tables

Source: Denton & Ostry (1969); Census of Canada (1971, Volume III-Part 1); Gnanasekaran and Montigny (1975); Nagnur (1986); Krishnan, Penning and Kurian (1981); Author (1981 Conventional and Modified Working-Life Tables).

There are no data available on female working-life expectancy that are directly comparable to the conventional or modified estimates. Chow, Krishnan and Lalu (1986) prepared model working-life tables for Canadian females for the period 1921-1971, but these estimates are not comparable due to a difference in methodology (crude labour force participation rates were employed as opposed to the rates for females aged 15 and over used in this study). However, the historical female participation rates, which nearly tripled between 1921 and 1981, reveal that dramatic changes were occurring (Table 4.2). The marked upward trend in female participation began 1951, as the downward trend in male participation became more apparent. By 1981 the majority of Canadian women (52%) were in the labour force, whether out of necessity as in the case of the increasing number of female lone parents, or to supplement the husband's income and jointly cope with a rising cost of living, or simply to pursue individual goals and self fulfillment.

In 1981, women aged 15 (including all marital statuses) could expect to live nearly two years longer and work about half a year more than in 1971 (modified estimate, Table 4.2). While in earlier years mothers could expect to spend fewer years in the work force due to time devoted to child bearing and rearing, the 1970's brought expanded social and economic opportunities for women (through child care, etc.) removing some of the barriers to working outside the home. In 1981 the working-life expectancy of married women was just three years less than that of single women (Appendix Tables 9 and 10), suggesting the difference in the duration of working life between the two statuses has narrowed considerably.

In this and previous discussions it should be noted that the working-life table estimates are averages only. Some young persons may never enter the labour force, and other persons in the labour force may die and, therefore, never experience retirement. As we are concerned only with the percentage of males and females in the labour force, the appropriate adjustments should be made to the table estimates. In 1981, for example, 78.2% of males were employed, thus (using the estimate from Appendix Table 2, Column 10) the adjusted working-life expectancy for males aged 15 is 42.2 x 0.782 = 33 years. Similarly, as 51.8% of females is shown to be employed in 1981, the adjusted working-life expectancy for females age 15 (using Table 4, Column 10) is 39.19 x 0.518 = 20.3 years.

6.0 CONCLUSIONS

The purpose of this study was, first, to construct working-life tables for Canadian males and females using the concept of "weeks worked" in preparing modified labour force participation rates and, second, to compare the modified version with the conventional method. The aim was to measure the actual contribution of persons in the production of goods and services, rather than the number of persons available to contribute, or the supply side of the labour force. Unemployment tables were also constructed to obtain a more complete understanding of the components of working life.

The modified method produced considerably higher rates than the conventional tables in the older age groups for both males and females, and generally for females of all ages. The person year of work concept - or the number of weeks worked per year - appears to capture the demographic groups that work periodically or for only portions of a given year, but nevertheless contribute to the national economy. Females, particularly married women, are likely to have frequent entries to and exits from the work force and such participation is difficult to measure using the current labour force definition based on the "reference week" criterion.

Comparisons over time revealed that Canadian males and females had increased their life expectancy but, according to the conventional estimates, could expect to spend less of their life time in the work force. On the other hand, the modified estimates, capturing the part-time and occasional workers, predicted a lesser decline in the duration of working life, again mainly for the older age groups.

The unemployment tables revealed the highest unemployment rates for the younger age groups and married women. This again reflects high "reentry unemployment" among younger persons who experience high job mobility and married women who tend to work periodically during the years of family formation and child rearing. The unemployment tables were useful in estimating a person's expected working-life time. Combining components from both the working-life and unemployment tables provided a more comprehensive picture of the labour force dynamics which influence, and are influenced by, an individual's work-related life time and the national economy.

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APPENDIX A

CALCULATION OF THE TABLE COLUMNS

Conventional and Modified Working Life Tables

Wx — the activity rate, or the ratio of the number of persons in the labour force to the number of persons in the population in the interval between exact age x and exact age x+5 (see Methodology).

***l* x** — the number of persons who survive to exact age x out of the original 10,000 alive at birth.

5Lx — the combined total number of years of life lived in the age interval by the number who have survived in the table cohort at exact age x; alternatively, the size of the stationary population in the age interval.

Tx — the combined total number of years of life remaining to persons who have survived to exact age x; alternatively, the total number of persons of exact age x or older.

ex — the average expectation of life, or the average number of years of life remaining to persons alive at exact age x.

***l* wx** — the number of persons who survive and are in the labour force at exact age x from the 10,000 alive at birth.

Columns: 3 x 2/100

Lwx — the combined total number of years of labour force activity experienced in the age interval by the number who have survived in the table cohort at exact age x; alternatively, the number of persons in the labour force in the age interval.

Columns: 4 x 1/100

Twx — the combined total number of years of labour force activity remaining to persons who have survived and are in the labour force at exact age x.

ewx — the average expectation of (active) working life, or the average number of years of working life remaining to all persons alive at exact age x.

Columns: 9/3

erx — the average expectation of economically inactive life, or the average number of years of economically inactive life remaining for all persons alive at exact age x.

Columns: 6-10

Wx* — adjusted activity rates, a hypothetical activity rate applied to all of the younger ages which fall below the maximum rate (see Methodology).

ewx* — the average expectation of working life for persons in the labour force, or the average number of years of labour force activity remaining to persons alive and in the labour force at exact age x.

Columns: 16/14

erx* — the average expectation of retirement at exact age x for persons in the labour force, or the average number of years of retirement expected for persons alive and in the labour force at exact age x.

Columns: 6-17

Net Unemployment Table

Ux — the unemployment rate, or the ratio of the number of unemployed persons to the number of persons in the labour force in the interval between exact age x and exact age x + 5 (see Methodology).

***l* x, 5Lx, Tx, ex** — life table columns, the same as for the working-life tables.

***l* ux** — the number of persons who survive and are unemployed at exact age x from the 10,000 born alive at birth.

Columns: 3 x 2/100

Lux — the combined total number of years of unemployment experienced in the age interval by the number who have survived in the table cohort at exact age x; alternatively, the number of persons unemployed in the age interval.

Columns: 4 x 1/100

Tux — the combined total number of years of unemployment remaining to persons who have survived in the age interval.

eux — the average expectation of unemployment, or the average number of years of unemployment remaining to all persons alive at age x.

Columns: 9/3

Gross Unemployment Table

U x — the rate of attrition - the unemployment rate (the ratio of the number of unemployed persons to the number of persons in the labour force in the age interval) (see Methodology).

qux — the probability of unemployment in the age interval

$qux + 5 = 1/2\ (Ux + Ux + 5)/100$

***l* Ex** — the number of employed persons in the age interval; this is initially set at 10,000 entrants to the work force aged 15-19, then reduced in each age interval by the age-specific probability of attrition through unemployment.

$l\ Ex+1 = l\ Ex - dux$

dux — the number of decrements, or persons leaving the labour force through unemployment in the age interval.

$dUx = l\ Ex \cdot qux$

LEx — the combined total number of years of employment experienced in the age interval, or the size of the employed population in the age interval.

$LEx = 2.5\ (l\ x + l\ x + 5)$

TEx — the combined total number of years of employment remaining in the age interval and all subsequent age intervals.

$$TEx = \sum_{15}^{64} LEx$$

***e* Ex** — the average expectation of unemployment-free work, or the average number of years of unemployment-free working life remaining in the age interval.

$e\ Ex = Tex/l\ Ex$

APPENDIX B

CONVENTIONAL AND MODIFIED WORKING-LIFE TABLES
GROSS AND NET UNEMPLOYMENT TABLES

TABLE

1. Conventional Working Life Table for Males, Canada, 1981
2. Modified Working Life Table for Males, Canada, 1981
3. Conventional Working Life Table for Females, Canada, 1981
4. Modified Working Life Table for Females, Canada, 1981
5. Gross Unemployment Table for Males, Canada, 1981
6. Gross Unemployment Table for Females, Canada, 1981
7. Net Unemployment Table for Males, Canada 1981
8. Net Unemployment Table for Females, Canada, 1981
9. Modified Working Life Table for Single (Never Married) Females, Canada, 1981
10. Modified Working Life Table for Married Females, Canada, 1981
11. Modified Working Life Table for "Not Married" Females (Separated, Divorced, Widowed) Canada, 1981
12. Net Unemployment Table for Single (Never Married) Females, Canada, 1981
13. Net Working Life Table for Married Females, Canada, 1981
14. Net Working Life Table for "Not Married" Females (Separated, Married, Divorced) Canada, 1981

TABLE 1 CONVENTIONAL WORKING LIFE TABLE FOR MALES, CANADA, 1981

AGE	ACTIVITY RATE PER 100		NUMBER LIVING OF 10,000 BORN ALIVE	EXPECTED YEARS OF LIFE AT AGE X	NUMBER ECONOMICALLY ACTIVE OF 10,000 BORN ALIVE	EXPECTATION OF LIFE AT AGE X	
						ACTIVE LIFE	INACT. LIFE
	IN AGE INTERVAL	AT EXACT AGE X					
	Wx	Wx	lx	5Lx	Tx	ex	lwx	Lwx	Twx	ewx	erx
	1	2	3	4	5	6	7	8	9	10	11
15-19	48.6	24.3	9854	49024	570829	58.05	2390	25826	407431	41.43	16.62
20-24	90.9	69.8	9771	48664	521805	53.4	6820	44236	383605	39.26	14.14
25-29	95.3	95.1	9694	48302	473141	48.81	9025	46032	339369	35.01	13.8
30-34	95.5	95.5	9628	47981	424839	44.13	9175	45726	293337	30.47	13.66
35-39	95.2	95.2	9565	47617	376858	39.41	9104	45331	247611	25.89	13.52
40-44	95.2	95.2	9478	47096	529241	34.74	9023	44835	202280	21.34	13.4
45-49	92.3	93.8	9349	46256	282145	30.18	8769	42694	157445	16.84	13.34
50-54	92.5	92.3	9155	44875	235889	25.82	8432	41420	114751	12.56	13.26
55-59	84.4	88.4	8789	42692	191014	21.73	7769	36032	73331	8.34	15.39
60-64	68.8	76.6	8252	39426	148321	17.97	6321	27125	37299	4.52	13.45
65-69	21.9	45.4	7475	34795	108895	14.57	3395	7620	10174	1.36	13.21
70+	8.9	15.4	6596	28695	74103	11.59	985	2554	2554	0.4	11.19

Source: Statistics Canada, Catalogues 92-915 and 89-506

TABLE 1 cont. CONVENTIONAL WORKING LIFE TABLE FOR MALES
CANADA, 1981

AGE	ADJUSTED ACTIVITY RATE FOR AGES 15-34	NUMBER IN LABOUR FORCE OF 10,000 BORN ALIVE			EXPECTATION OF LIFE AT AGE X	
					WORKING LIFE	RETIREMENT LIFE
	IN AGE INTERVAL	AT EXACT AGE X				
	Wx*	Wx*	lwx*	Lwx*	Twx*	ewx*	erx*
	12	13	14	15	16	17	18
15-19	95.3	95.3	9372	46720	432466	46.14	11.91
20-24	95.3	95.3	9312	46577	385746	41.42	11.98
25-29	95.3	95.3	9258	46032	339369	36.74	12.07
30-34	95.3	95.3	9175	45726	293337	31.97	12.1[illegible]
35-39	95.2	95.3	9114	45331	247611	27.17	12.24
40-44	95.2	95.2	9023	44835	202280	22.42	12.52
45-49	92.3	95.8	8769	42694	157445	17.95	12.23
50-54	92.3	92.3	8432	41420	114751	13.61	12.21
55-59	84.4	88.4	7769	36032	73331	9.44	12.29
60-64	68.8	76.6	6321	27125	37299	5.9	12.07
65-69	21.9	45.4	3395	7620	10174	3	11.57
70+	8.9	15.4	985	2554	2554	2.59	9

Statistics Canada, Catalogues 92-915 and 89-506

TABLE 2 MODIFIED WORKING LIFE TABLE FOR MALES, CANADA, 1981

AGE	ACTIVITY RATE PER 100		NUMBER LIVING OF 10,000 BORN ALIVE	EXPECTED YEARS OF LIFE AT AGE X	NUMBER ECONOMICALLY ACTIVE OF 10,000 BORN ALIVE	EXPECTATION OF LIFE AT AGE X	
						ACTIVE LIFE	INACT. LIFE
	IN AGE INTERVAL	AT EXACT AGE X					
	Wx	Wx	lx	5Lx	Tx	ex	lwx	Lwx	Twx	ewx	erx
	1	2	3	4	5	6	7	8	9	10	11
15-19	45	22.5	9854	49024	570829	58.05	2215	22061	415021	42.2	15.85
20-24	71.1	58.1	9771	48664	521805	53.4	5677	34600	392960	40.22	13.18
25-29	83.3	77.2	9694	48302	473141	48.81	7484	40256	358360	36.97	11.84
30-34	87.4	85.4	9628	47981	424839	44.13	8222	41935	318124	33.04	11.09
35-39	91.7	89.6	9565	47617	376858	39.41	8568	43665	276189	28.88	10.53
40-44	87.2	89.5	9478	47096	329241	34.74	8483	41068	232524	24.53	10.21
45-49	88.6	87.9	9549	46256	282145	30.18	8218	40983	191456	20.48	9.7
50-54	87.7	88.2	9155	44875	235889	25.82	8057	39555	150473	16.47	9.35
55-59	87.7	87.7	8789	42692	191014	21.73	7708	37441	111118	12.64	9.09
60-64	81.1	84.4	8252	39426	148321	17.97	6965	31974	73677	8.93	9.04
65-69	67	74.1	7475	34795	108895	14.57	5557	25511	41705	5.58	8.99
70+	64.1	65.6	6596	28693	74103	11.59	4196	18592	18592	2.88	8.71

Source: 1981 Census of Canada Public Use Sample Tapes; Statistics Canada, Catalogue 89-506

TABLE 2 cont. MODIFIED WORKING LIFE TABLE FOR MALES
CANADA, 1981

AGE	ADJUSTED ACTIVITY RATE FOR AGES 15-39		NUMBER IN LABOUR FORCE OF 10,000 BORN ALIVE			EXPECTATION OF LIFE AT AGE X	
						WORKING LIFE	RETIREMENT LIFE
	IN AGE INTERVAL	AT EXACT AGE X					
	Wx*	Wx*	lwx*	Lwx*	Twx*	ewx*	erx*
	12	13	14	15	16	17	18
15-19	91.7	91.7	9018	44955	454061	50.35	7.7
20-24	91.7	91.7	8960	44625	409106	45.66	7.74
25-29	91.7	91.7	8889	44293	364481	41	7.81
30-34	91.7	91.7	8829	43999	320188	36.27	7.86
35-39	91.7	91.7	8769	43665	276189	31.5	7.91
40-44	87.2	89.5	8483	41068	232524	27.41	7.55
45-49	88.6	87.9	8218	40983	191456	23.3	6.88
50-54	87.7	88.2	8057	39355	150473	18.68	7.14
55-59	87.7	87.7	7708	37441	111118	14.42	7.31
60-64	81.1	84.4	6965	31974	73677	10.58	7.39
65-69	67	74.1	5537	25311	41703	7.53	7.04
70+	64.1	65.6	4196	18392	18392	4.38	7.21

Source: 1981 Census of Canada Public Use Sample Tapes;
Statistics Canada, Catalogue 89-506

TABLE 3 CONVENTIONAL WORKING LIFE TABLE FOR FEMALES, CANADA, 1981

AGE	ACTIVITY RATE PER 100		NUMBER LIVING OF 10,000 BORN ALIVE		EXPECTED YEARS OF LIFE AT AGE X	NUMBER ECONOMICALLY ACTIVE OF 10,000 BORN ALIVE			EXPECTATION OF LIFE AT AGE X	
									ACTIVE LIFE	INACT. LIFE
	IN AGE INTERVAL Wx	AT EXACT AGE X Wx	lx	5LX	Tx	ex	lwx	Lwx	Twx	ewx	erx
	1	2	3	4	5	6	7	8	9	10	11
15-19	44.5	22.5	9876	49528	642153	65.02	2202	21951	276211	27.97	37.05
20-24	77.2	60.9	9854	49214	592825	60.16	6001	37993	254260	25.8	34.36
25-29	65.8	71.5	9851	49092	543611	55.29	7029	52303	216267	22	33.29
30-34	65.8	65.8	9805	48952	494519	50.44	6452	52210	183964	18.76	31.68
35-39	64.3	65.1	9774	48756	445568	45.59	6365	51350	151754	15.53	30.06
40-44	64.3	64.3	9725	48443	396812	40.8	6253	31149	120404	12.38	28.42
45-49	55.9	60.1	9647	47950	348369	36.11	5798	26804	89255	9.25	26.86
50-54	55.9	55.9	9524	47174	300419	31.54	5324	26370	62451	6.56	24.98
55-59	41.9	48.9	9351	45979	253245	27.14	4565	19265	36081	3.87	23.27
60-64	28.3	35.1	9041	44204	207267	22.95	3173	12510	16816	1.86	21.07
65-69	8	18.2	8612	41572	163063	18.95	1567	3526	4306	0.5	18.43
70+	2.6	5	7975	57711	121491	15.25	399	980	980	0.12	15.11

Source: Statistics Canada, Catalogues 92-915 and 89-506

TABLE 3 cont. CONVENTIONAL WORKING LIFE TABLE FOR FEMALES
CANADA, 1981

AGE	ADJUSTED ACTIVITY RATE FOR AGES 15-24		NUMBER IN LABOUR FORCE OF 10,000 BORN ALIVE			EXPECTATION OF LIFE AT AGE X	
	IN AGE INTERVAL Wx*	AT EXACT AGE X Wx*	lwx*	Lwx*	Twx*	WORKING LIFE ewx*	RETIREMEN LIFE erx*
	12	13	14	15	16	17	18
15-19	77.2	77.2	7624	38081	292341	38.34	26.68
20-24	77.2	77.2	7607	37993	254260	33.42	26.74
25-29	65.8	71.5	7029	52305	216267	30.77	24.52
30-34	65.8	65.8	6452	32210	183964	28.51	21.93
35-39	64.3	65.1	6365	31550	151754	23.85	21.74
40-44	64.3	64.3	6253	31149	120404	19.26	21.54
45-49	55.9	60.1	5798	26804	89255	15.39	20.72
50-54	55.9	55.9	5324	26370	62451	11.73	19.81
55-59	41.9	48.9	4565	19265	36081	7.91	19.23
60-64	28.3	35.1	3173	12510	16816	5.3	17.63
65-69	8	18.2	1567	3326	4306	2.75	16.18
70+	2.6	5	399	980	980	2.46	12.77

Source: Statistics Canada, Catalogues 92-915 and 89-506

TABLE 4 MODIFIED WORKING LIFE TABLE FOR FEMALES, CANADA, 1981

AGE	ACTIVITY RATE PER 100		NUMBER LIVING OF 10,000 BORN ALIVE		EXPECTED YEARS OF LIFE AT AGE X	NUMBER ECONOMICALLY ACTIVE OF 10,000 BORN ALIVE	EXPECTATION OF LIFE AT AGE X	
							ACTIVE LIFE	INACT. LIFE
	IN AGE INTERVAL Wx	AT EXACT AGE X Wx	lx	5LX	Tx	ex	lwx	Lwx	Twx	ewx	erx
	1	2	3	4	5	6	7	8	9	10	11
15-19	41.9	21	9876	49328	642153	65.02	2074	20668	387014	39.19	25.83
20-24	67.3	54.6	9854	49214	592825	60.16	5380	33121	366346	37.18	22.98
25-29	73.3	70.3	9851	49092	543611	55.29	6911	35984	333225	33.9	21.39
30-34	71.7	72.5	9805	48952	494519	50.44	7109	35099	297241	30.32	20.12
35-39	75.1	73.4	9774	48756	445568	45.59	7174	36616	262142	26.82	18.77
40-44	75.8	75.5	9725	48443	396812	40.8	7342	36720	225526	23.19	17.61
45-49	78.6	78.2	9647	47950	348369	36.11	7544	37689	188806	19.57	16.54
50-54	77.8	78.2	9524	47174	300419	31.54	7448	36701	151117	15.87	15.67
55-59	79.5	78.7	9351	45979	253245	27.14	7343	36553	114416	12.26	14.88
60-64	75.4	77.5	9041	44204	207267	22.93	7007	33350	77863	8.61	14.32
65-69	58.5	66.9	8612	41572	163063	18.93	5761	24320	44553	5.17	13.76
70+	53.6	56.1	7975	37711	121491	15.23	4474	20213	20213	2.53	12.7

Source: 1981 Census of Canada Public Use Sample Tapes; Statistics Canada, Catalogue 89-506

TABLE 4 cont. MODIFIED WORKING LIFE TABLE FOR FEMALES
CANADA, 1981

AGE	ADJUSTED ACTIVITY RATE FOR AGES 15-59		NUMBER IN LABOUR FORCE OF 10,000 BORN ALIVE			EXPECTATION OF LIFE AT AGE X	
	IN AGE INTERVAL Wx*	AT EXACT AGE X Wx*	lwx*	Lwx*	Twx*	WORKING LIFE ewx*	RETIREMENT LIFE erx*
	12	13	14	15	16	17	18
15-19	79.5	79.5	7851	39216	423598	53.95	11.07
20-24	79.5	79.5	7834	39125	384382	49.07	11.09
25-29	79.5	79.5	7816	39028	345257	44.17	11.12
30-34	79.5	79.5	7795	38917	306229	39.29	11.15
35-39	79.5	79.5	7770	38761	267312	34.4	11.19
40-44	79.5	79.5	7731	38512	228551	29.56	11.24
45-49	79.5	79.5	7669	38120	190039	24.78	11.33
50-54	79.5	79.5	7572	37503	151919	20.06	11.48
55-59	79.5	79.5	7418	36553	114416	15.42	11.72
60-64	75.4	77.5	7007	33350	77863	11.11	11.82
65-69	58.5	66.9	5761	24320	44533	7.73	11.2
70+	53.6	56.1	4474	20213	20213	4.52	10.71

Source: 1981 Census of Canada Public Use Sample Tapes;
Statistics Canada, Catalogue 89-506

TABLE 5 GROSS UNEMPLOYMENT TABLE FOR MALES
CANADA, 1981

AGE	RATE	PROB.	NO. EMPLOYED AT AGE X	NO. LEAVING WORK	LIFE YEARS EMPLOYED	TOTAL YEARS EMPLOYED	EXPECTED UNEMPLOYMENT-FREE WORK
	Ux	qux	lEx	dux	LEx	TEx	eEx
	1	2	3	4	5	6	7
15-19	15.1	0.0755	10000	755	48113	348084	34.81
20-24	11.5	0.135	9245	1250	43150	299971	32.45
25-29	5.7	0.086	8015	689	38353	256821	32.04
30-34	5.7	0.057	7326	418	35585	218468	29.82
35-39	5.8	0.0475	6908	328	33720	182883	26.47
40-44	3.8	0.038	6580	250	32275	149163	22.67
45-49	3.9	0.0385	6330	244	31040	116888	18.47
50-54	3.9	0.039	6086	237	29858	85848	14.11
55-59	4.3	0.041	5849	240	28645	56010	9.58
60-64	5.4	0.0485	5609	272	27365	27365	4.88
65+	--	--	5337	--	--	--	--

SOURCE: STATISTICS CANADA, CATALOGUES 92-915 AND 89-506

TABLE 6 GROSS UNEMPLOYMENT TABLE FOR FEMALES
CANADA, 1981

AGE	RATE	PROB.	NO. EMPLOYED AT AGE X	NO. LEAVING WORK	LIFE YEARS EMPLOYED	TOTAL YEARS EMPLOYED	EXPECTED UNEMPLOYMENT-FREE WORK
	Ux	qux	lEx	dux	LEx	TEx	eEx
	1	2	3	4	5	6	7
15-19	16.1	0.0805	10000	805	47988	325667	32.57
20-24	11.5	0.138	9195	1269	42803	277679	30.2
25-29	8	0.0975	7926	773	37698	234876	29.63
30-34	8	0.08	7155	572	34335	197178	27.57
35-39	6.4	0.072	6581	474	31720	162843	24.74
40-44	6.4	0.064	6107	391	29558	131123	21.47
45-49	6	0.062	5716	354	27695	101565	17.77
50-54	6	0.06	5362	322	26005	73870	13.78
55-59	4.3	0.0515	5040	260	24550	47865	9.5
60-64	5.5	0.049	4780	234	23315	23315	4.88
65+	--	--	4546	--	--	--	--

Source: Statistics Canada, Catalogues 92-915 and 89-506

TABLE 7 NET UNEMPLOYMENT TABLE FOR MALES, CANADA, 1981

AGE	UNEMPLOYMENT RATE PER 100		NUMBER LIVING OF 10,000 BORN ALIVE			EXPECTED YEARS OF LIFE AT AGE X	NUMBER UNEMPLOYED OF 10,000 BORN ALIVE			EXPECTED UNEMPLOYED YEARS AT AGE X
	IN AGE INTERVAL	AT EXACT AGE X								
	Ux	Ux	lx	5Lx	Tx	ex	lux	Lux	Tux	eux
	1	2	3	4	5	6	7	8	9	10
15-19	15.1	7.6	9834	49024	570829	58.05	747	7403	33098	3.37
20-24	11.5	13.3	9771	48664	521805	53.4	1300	5596	25695	2.63
25-29	5.7	8.6	9694	48302	473141	48.81	834	2755	20099	2.07
30-34	5.7	5.7	9628	47981	424839	44.13	549	2735	17346	1.8
35-39	3.8	4.8	9563	47617	376858	39.41	459	1809	14611	1.53
40-44	3.8	3.8	9478	47096	329241	34.74	360	1790	12802	1.35
45-49	3.9	3.9	9349	46256	282145	30.18	365	1804	11012	1.18
50-54	3.9	3.9	9135	44875	235889	25.82	356	1750	9208	1.01
55-59	4.3	4.1	8789	42692	191014	21.73	360	1836	7458	0.85
60-64	5.4	4.9	8252	39426	148321	17.97	404	2129	5622	0.68
65+	2.7	4.1	7475	34795	108895	14.57	306	939	3493	0.47

Source: Statistics Canada Catalogues 92-915 and 89-506

TABLE 8 NET UNEMPLOYMENT TABLE FOR FEMALES, CANANDA, 1981

AGE	UNEMPLOYMENT RATE PER 100		NUMBER LIVING OF 10,000 BORN ALIVE			EXPECTED YEARS OF LIFE AT AGE X	NUMBER UNEMPLOYED OF 10,000 BORN ALIVE			EXPECTED UNEMPLOYED YEARS AT AGE X
	IN AGE INTERVAL Ux	AT EXACT AGE X Ux	lx	5LX	Tx	ex	lux	Lux	Tux	eux
	1	2	3	4	5	6	7	8	9	10
15-19	16.1	8.1	9876	49328	642153	65.02	800	7942	38902	3.94
20-24	11.5	13.8	9854	49214	592825	60.16	1360	5660	30960	3.14
25-29	8	9.8	9831	49092	543611	55.29	963	3927	25300	2.57
30-34	8	8	9805	48952	494519	50.44	784	3916	21373	2.18
35-39	6.4	7.2	9774	48756	445568	45.59	704	3120	17457	1.79
40-44	6.4	6.4	9725	48443	396812	40.8	622	3100	14337	1.47
45-49	6	6.2	9647	47950	348369	36.11	598	2877	11237	1.16
50-54	6	6	9524	47174	300419	31.54	571	2830	8360	0.88
55-59	4.3	5.2	9351	45979	253245	27.14	485	1977	5530	0.59
60-64	5.5	4.9	9041	44204	207267	22.93	443	2431	3553	0.39
65+	2.7	4.1	8612	41572	163063	18.93	353	1122	1122	0.13

Source: Statistics Canada, Catalogues 92-915 and 89-506

TABLE 9 MODIFIED WORKING LIFE TABLE FOR SINGLE (NEVER MARRIED) FEMALES, CANADA, 1981

AGE	ACTIVITY RATE PER 100		NUMBER LIVING OF 10,000 BORN ALIVE		EXPECTED YEARS OF LIFE AT AGE X	NUMBER ECONOMICALLY ACTIVE OF 10,000 BORN ALIVE			EXPECTATION OF LIFE AT AGE X	
									ACTIVE LIFE	INACT. LIFE
	IN AGE INTERVAL Wx	AT EXACT AGE X Wx	lx	5LX	Tx	ex	lwx	Lwx	Twx	ewx	erx
	1	2	3	4	5	6	7	8	9	10	11
15-19	41.4	20.7	9876	49328	642153	65.02	2044	20422	411404	41.66	23.36
20-24	67.5	54.5	9854	49214	592825	60.16	5370	33219	390982	39.68	20.48
25-29	80.6	74	9831	49092	543611	55.29	7275	39568	357763	36.39	18.9
30-34	84.3	82.4	9805	48952	494519	50.44	8079	41267	318195	32.45	17.99
35-39	88.2	86.2	9774	48756	445568	45.59	8425	43003	276928	28.33	17.26
40-44	81.5	84.9	9725	48443	396812	40.8	8257	39481	233925	24.05	16.75
45-49	89.4	85.5	9647	47950	348369	36.11	8248	42867	194444	20.16	15.95
50-54	89.2	89.3	9524	47174	300419	31.54	8505	42079	151577	15.92	15.62
55-59	89.9	89.6	9331	45979	253245	27.14	8361	41335	109498	11.73	15.41
60-64	70.9	80.4	9041	44204	207267	22.93	7269	31341	68163	7.54	15.39
65-69	43.4	57.1	8612	41572	163063	18.93	4917	18042	36822	4.28	14.65
70+	49.8	46.6	7975	37711	121491	15.23	3716	18780	18780	2.35	12.88

Source: 1981 Census of Canada Public Use Sample Tapes; Statistics Canada, Catalogue 89-506

TABLE 9 cont. MODIFIED WORKING LIFE TABLE FOR SINGLE FEMALES
CANADA, 1981

AGE	ADJUSTED ACTIVITY RATE FOR AGES 15-59		NUMBER IN LABOUR FORCE OF 10,000 BORN ALIVE			EXPECTATION OF LIFE AT AGE X	
						WORKING LIFE	RETIREMENT LIFE
	IN AGE INTERVAL Wx*	AT EXACT AGE X Wx*	lwx*	Lwx*	Twx*	ewx*	erx*
	12	13	14	15	16	17	18
15-19	89.9	89.9	8879	44346	459127	51.71	13.31
20-24	89.9	89.9	8859	44243	414781	46.82	13.34
25-29	89.9	89.9	8838	44134	370538	41.93	13.36
30-34	89.9	89.9	8815	44008	326404	37.03	13.41
35-39	89.9	89.9	8787	43832	282396	32.14	13.45
40-44	89.9	89.9	8743	43550	238564	27.29	13.51
45-49	89.9	89.9	8673	43107	195014	22.49	13.62
50-54	89.9	89.9	8562	42409	151907	17.74	13.8
55-59	89.9	89.9	8389	41335	109498	13.05	14.09
60-64	70.9	80.4	7269	31341	68165	9.38	13.55
65-69	45.4	57.1	4917	18042	36822	7.49	11.44
70+	49.8	46.6	3716	18780	18780	5.05	10.18

Source: 1981 Census of Canada Public Use Sample Tapes;
Statistics Canada, Catalogue 89-506

TABLE 10 MODIFIED WORKING LIFE TABLE FOR MARRIED FEMALES, CANADA, 1981

AGE	ACTIVITY RATE PER 100		NUMBER LIVING OF 10,000 BORN ALIVE	EXPECTED YEARS OF LIFE AT AGE X	NUMBER ECONOMICALLY ACTIVE OF 10,000 BORN ALIVE		EXPECTATION OF LIFE AT AGE X	
							ACTIVE LIFE	INACT. LIFE
	IN AGE INTERVAL Wx	AT EXACT AGE X Wx	lx	5LX	Tx	ex	lwx	Lwx	Twx	ewx	erx
	1	2	3	4	5	6	7	8	9	10	11
15-19	47	25.5	9876	49528	642153	65.02	2521	23184	384715	38.95	26.07
20-24	67.3	57.2	9854	49214	592825	60.16	5636	33121	361531	36.69	23.47
25-29	71.7	69.5	9831	49092	543611	55.29	6835	35199	328410	33.41	21.88
30-34	68.9	70.3	9805	48952	494519	50.44	6893	33728	293211	29.9	20.54
35-39	75.1	71	9774	48756	445568	45.59	6940	35641	259483	26.55	19.04
40-44	75.6	74.4	9725	48443	396812	40.8	7235	36623	223842	23.02	17.78
45-49	76.3	75.9	9647	47950	348369	36.11	7322	36586	187219	19.41	16.7
50-54	77.2	76.7	9524	47174	300419	31.54	7305	36418	150633	15.82	15.72
55-59	78.1	77.7	9351	45979	253245	27.14	7250	35910	114215	12.24	14.9
60-64	75.2	76.7	9041	44204	207267	22.93	6954	33241	78305	8.66	14.27
65-69	61.5	68.4	8612	41572	163063	18.93	5891	25567	45064	5.23	13.7
70+	51.7	56.6	7975	37711	121491	15.23	4514	19497	19497	2.44	12.79

Source: 1981 Census of Canada Public Use Sample Tapes; Statistics Canada, Catalogue 89-506

TABLE 10 cont. MODIFIED WORKING LIFE TABLE FOR MARRIED FEMALES
CANADA, 1981

AGE	ADJUSTED ACTIVITY RATE FOR AGES 15-59		NUMBER IN LABOUR FORCE OF 10,000 BORN ALIVE			EXPECTATION OF LIFE AT AGE X	
						WORKING LIFE	RETIREMEN LIFE
	IN AGE INTERVAL Wx*	AT EXACT AGE X Wx*	lwx*	Lwx*	Twx*	ewx*	erx*
	12	13	14	15	16	17	18
15-19	78.1	78.1	7713	38525	417953	54.19	10.83
20-24	78.1	78.1	7696	38436	379428	49.3	10.86
25-29	78.1	78.1	7678	38341	340992	44.41	10.88
30-34	78.1	78.1	7658	38232	302651	39.52	10.92
35-39	78.1	78.1	7633	38078	264419	34.64	10.95
40-44	78.1	78.1	7595	37834	226341	29.8	11
45-49	78.1	78.1	7554	37449	188507	25.02	11.09
50-54	78.1	78.1	7438	36843	151058	20.31	11.25
55-59	78.1	78.1	7288	35910	114215	15.67	11.47
60-64	75.2	76.7	6934	33241	78305	11.29	11.64
65-69	61.5	68.4	5891	25567	45064	7.65	11.28
70+	51.7	56.6	4514	19497	19497	4.32	10.91

Source: 1981 Census of Canada Public Use Sample Tapes;
Statistics Canada, Catalogue 89-506

TABLE 11 MODIFIED WORKING LIFE TABLE FOR "NOT MARRIED" FEMALES, CANADA, 1981
SEPARATED, DIVORCED AND WIDOWED
CANADA, 1981

AGE	ACTIVITY RATE PER 100		NUMBER LIVING OF 10,000 BORN ALIVE	EXPECTED YEARS OF LIFE AT AGE X	NUMBER ECONOMICALLY ACTIVE OF 10,000 BORN ALIVE		EXPECTATION OF LIFE AT AGE X	
							ACTIVE LIFE	INACT. LIFE
	IN AGE INTERVAL Wx	AT EXACT AGE X Wx	lx	5LX	Tx	ex	lwx	Lwx	Twx	ewx	erx
	1	2	3	4	5	6	7	8	9	10	11
15-19	0	0	9876	49528	642153	65.02	0	0	368281	37.29	27.73
20-24	61	50.5	9854	49214	592825	60.16	3005	30021	368281	37.37	22.79
25-29	61.8	61.4	9851	49092	543611	55.29	6056	30339	338260	34.41	20.88
30-34	74.9	68.3	9805	48952	494519	50.44	6697	36665	307921	31.4	19.04
35-39	79.1	77	9774	48756	445568	45.59	7526	38566	271256	27.75	17.84
40-44	73.9	76.5	9725	48443	396812	40.8	7440	35799	232690	23.93	16.87
45-49	88.4	81.1	9647	47950	348369	36.11	7824	42388	196891	20.41	15.7
50-54	76.1	82.5	9524	47174	300419	31.54	7858	35899	154503	16.22	15.32
55-59	80.5	78.3	9351	45979	253245	27.14	7306	37013	118604	12.71	14.43
60-64	77.3	79.9	9041	44204	207267	22.93	7224	34170	81591	9.02	13.91
65-69	65	70.1	8612	41572	163063	18.93	6037	26190	47421	5.51	13.42
70+	56.3	59.6	7975	37711	121491	15.23	4753	21231	21231	2.66	12.57

Source: 1981 Census of Canada Public Use Sample Tapes; Statistics Canada, Catalogue 89-506

TABLE 11 cont. MODIFIED WORKING LIFE TABLE FOR FEMALES
SEPARATED, DIVORCED AND WIDOWED
CANADA, 1981

AGE	ADJUSTED ACTIVITY RATE FOR AGES 15-49	NUMBER IN LABOUR FORCE OF 10,000 BORN ALIVE			EXPECTATION OF LIFE AT AGE X	
					WORKING LIFE	RETIREMENT LIFE
	IN AGE INTERVAL Wx*	AT EXACT AGE X Wx*	lwx*	Lwx*	Twx*	ewx*	erx*
	12	13	14	15	16	17	18
15-19	88.4	88.4	8750	43606	456597	52.3	12.72
20-24	88.4	88.4	8711	43505	412991	47.41	12.75
25-29	88.4	88.4	8691	43397	369486	42.51	12.78
30-34	88.4	88.4	8668	43274	326089	37.62	12.82
35-39	88.4	88.4	8640	43100	282815	32.73	12.86
40-44	88.4	88.4	8597	42824	239715	27.88	12.92
45-49	88.4	88.4	8528	42388	196891	23.09	13.02
50-54	76.1	82.5	7838	35899	154503	19.71	11.83
55-59	80.5	78.3	7306	37013	118604	16.23	10.91
60-64	77.5	79.9	7224	34170	81591	11.29	11.64
65-69	65	70.1	6037	26190	47421	7.86	11.07
70+	56.5	59.6	4753	21231	21231	4.47	10.76

Source: 1981 Census of Canada Public Use Sample Tapes;
Statistics Canada, Catalogue 89-506

TABLE 12 NET UNEMPLOYMENT TABLE FOR SINGLE (NEVER MARRIED) FEMALES, CANADA, 1981

AGE	UNEMPLOYMENT RATE PER 100	NUMBER LIVING OF 10,000 BORN ALIVE		EXPECTED YEARS OF LIFE AT AGE X	NUMBER UNEMPLOYED OF 10,000 BORN ALIVE			EXPECTED UNEMPLOYED YEARS AT AGE X
	IN AGE INTERVAL Ux	AT EXACT AGE X Ux	lx	5LX	Tx	ex	lux	Lux	Tux	eux
	1	2	3	4	5	6	7	8	9	10
15-19	15.7	7.9	9876	49328	642153	65.02	780	7744	30893	3.13
20-24	11.1	13.4	9854	49214	592825	60.16	1320	5463	23149	2.35
25-29	6	8.6	9851	49092	543611	55.29	845	2946	17686	1.8
30-34	6	6	9805	48952	494519	50.44	588	2937	14740	1.5
35-39	4.2	5.1	9774	48756	445568	45.59	498	2048	11803	1.21
40-44	4	4.1	9725	48443	396812	40.8	399	1938	9755	1
45-49	3.7	3.9	9647	47950	348369	36.11	376	1774	7817	0.81
50-54	3.7	3.7	9524	47174	300419	31.54	352	1745	6043	0.63
55-59	3.6	3.7	9351	45979	253245	27.14	345	1655	4298	0.46
60-64	4.1	3.9	9041	44204	207267	22.93	353	1812	2643	0.29
65+	2	3.1	8612	41572	163063	18.93	267	831	831	0.1

Source: Statistics Canada, Catalogues 92-915 and 89-506

TABLE 13 NET UNEMPLOYMENT TABLE FOR MARRIED FEMALES, CANADA, 1981

AGE	UNEMPLOYMENT RATE PER 100		NUMBER LIVING OF 10,000 BORN ALIVE			EXPECTED YEARS OF LIFE AT AGE X	NUMBER UNEMPLOYED OF 10,000 BORN ALIVE			EXPECTED UNEMPLOYED YEARS AT AGE X
	IN AGE INTERVAL Ux	AT EXACT AGE X Ux	lx	5LX	Tx	ex	lux	Lux	Tux	eux
	1	2	3	4	5	6	7	8	9	10
15-19	20.5	10.3	9876	49328	642153	65.02	1017	10112	44191	4.47
20-24	12	16.3	9854	49214	592825	60.16	1606	5906	34079	3.46
25-29	8.5	10.3	9851	49092	543611	55.29	1013	4173	28173	2.87
30-34	8.5	8.5	9805	48952	494519	50.44	833	4161	24000	2.45
35-39	6.6	7.6	9774	48756	445568	45.59	743	3218	19839	2.03
40-44	6.6	6.6	9725	48443	396812	40.8	642	3197	16621	1.71
45-49	6.2	6.4	9647	47950	348369	36.11	617	2973	13424	1.39
50-54	6.1	6.2	9524	47174	300419	31.54	590	2878	10451	1.1
55-59	6	6.1	9351	45979	253245	27.14	569	2759	7573	0.81
60-64	6	6	9041	44204	207267	22.93	542	2652	4814	0.53
65+	5.2	5.6	8612	41572	163063	18.93	482	2162	2162	0.25

Source: Statistics Canada, Catalogues 92-915 and 89-506

TABLE 14 NET UNEMPLOYMENT TABLE FOR "NOT MARRIED" FEMALES, CANADA, 1981
(SEPARATED, DIVORCED AND WIDOWED)

AGE	UNEMPLOYMENT RATE PER 100		NUMBER LIVING OF 10,000 BORN ALIVE			EXPECTED YEARS OF LIFE AT AGE X	NUMBER UNEMPLOYED OF 10,000 BORN ALIVE			EXPECTED UNEMPLOYED YEARS AT AGE X
	IN AGE INTERVAL Ux	AT EXACT AGE X Ux	Ix	5LX	Tx	ex	lux	Lux	Tux	eux
	1	2	3	4	5	6	7	8	9	10
15-19	11.7	5.9	9876	49328	642153	65.02	583	5771	40861	4.14
20-24	10.8	11.5	9854	49214	592825	60.16	1114	5315	35090	3.56
25-29	9.2	10	9831	49092	543611	55.29	983	4516	29775	5.03
30-34	9.2	9.2	9805	48952	494519	50.44	902	4504	25259	2.58
35-39	7.3	8.3	9774	48756	445568	45.59	811	3559	20755	2.12
40-44	7	7.2	9725	48443	396812	40.8	700	3391	17196	1.77
45-49	6.6	6.8	9647	47950	348369	36.11	656	3165	13805	1.43
50-54	6.6	6.6	9524	47174	300419	31.54	629	3113	10640	1.12
55-59	6.2	6.4	9351	45979	253245	27.14	597	2851	7527	0.81
60-64	5.5	5.9	9041	44204	207267	22.93	533	2431	4676	0.52
65+	5.4	5.5	8612	41572	163063	18.93	474	2245	2245	0.26

Source: Statistics Canada, Catalogues 92-915 and 89-506